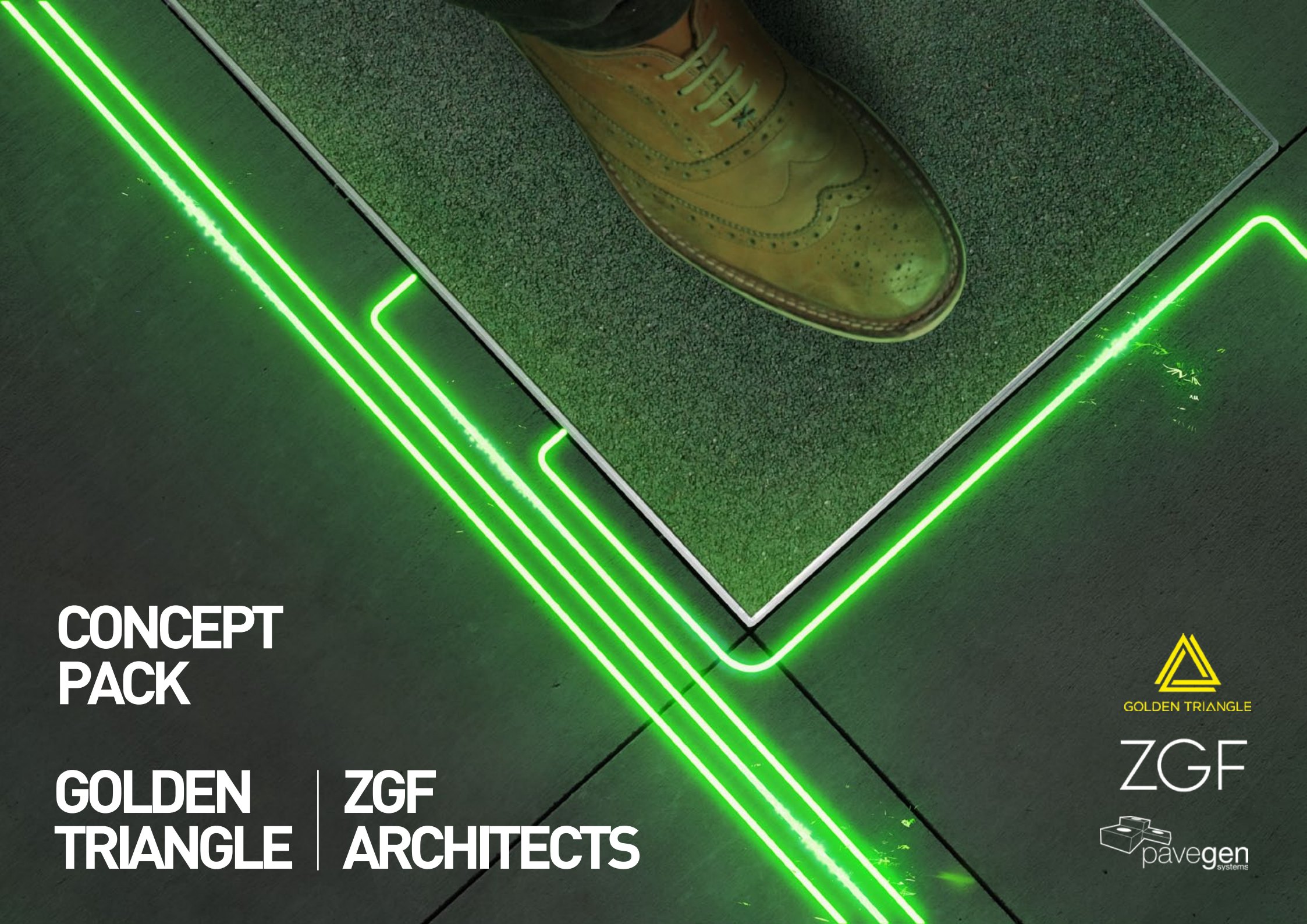


CONCEPT PACK

GOLDEN TRIANGLE | ZGF ARCHITECTS

GOLDEN TRIANGLE

ZGF

pavegen systems

Dupont Circle, Architectural Lighting Concept

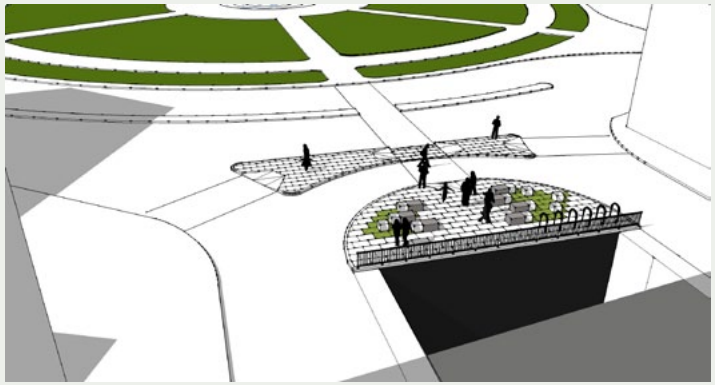
The Pavegen instalaltion at Dupont circle will be pioneering in its nature as the first large scale installation of kinetic energy harvesting technology within the USA.

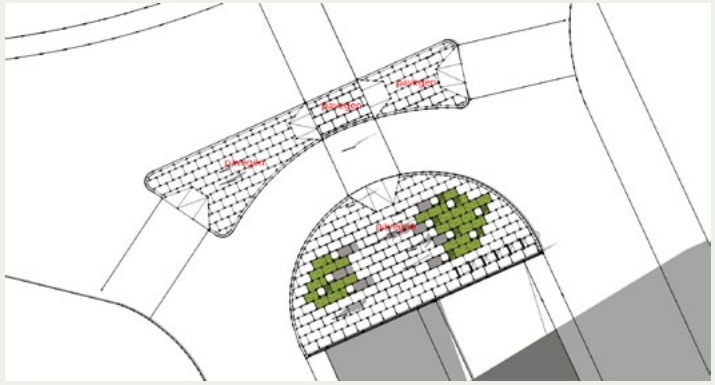
Dupont Circle, Architectural Lighting Concept

Pavegen is the only type of clean technology in the world that enables the user to directly take part in the renewable energy generation process.

Pavegen Electricity Applications

Suggested Application of Pavegen Power





Previous Permanent Applications

Saint-Omer Train Station, GDF Suez

Pavegen installed 14 tiles into a pavement outside St Omer train station in Northern France. The installation utilises the Pavegen Smart Power technology to drive LED bench lights outside the station. The wireless technology is used to show aggregated power data on a screen within the station itself.

London Bridge Office, RCP Capital

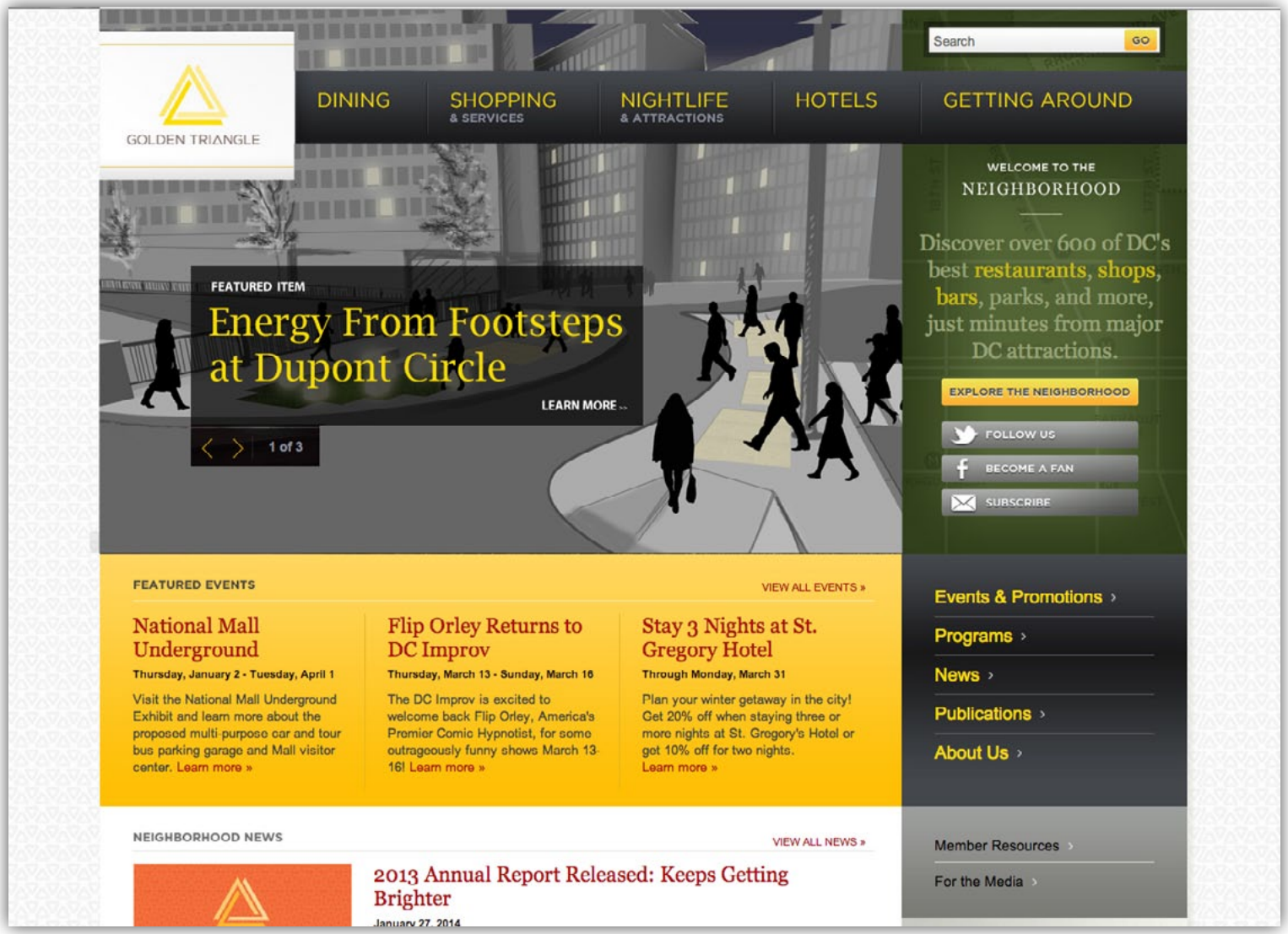
Pavegen installed 6 tiles within an office space in London Bridge, central London. The installation part powers LED spotlights in the main reception area and utilising the trigger technology to only drive the lights when people are walking through the space.

Stratford City, Westfield

Pavegen are soon to install 50 tiles outside the main entrance to Westfield Stratford City, the largest shopping center in Europe. The installation will be feeding into ceiling spotlights with a real-time data feed showing the percentage of grid vs. Pavegen power being visualized on a local screen.

Golden Triangle Home Screen Mock up

The real time website display will allow consumers to digitally engage with the Pavegen installation in a unique way whilst contributing to local, national and global amplification of the project.

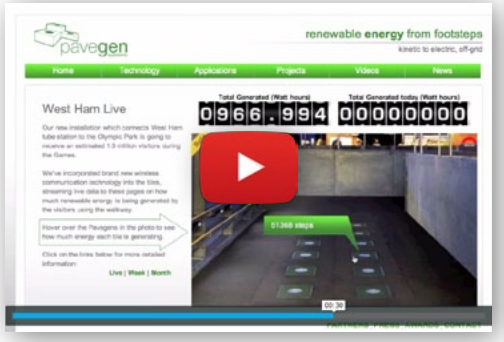


Golden Triangle Data Screen Mock up

A more detailed data screen can also be integrated within the Golden Triangle website.

Each tile has its own unique API and can be viewed by the site visitors by hovering their mouse over different parts of the installation.

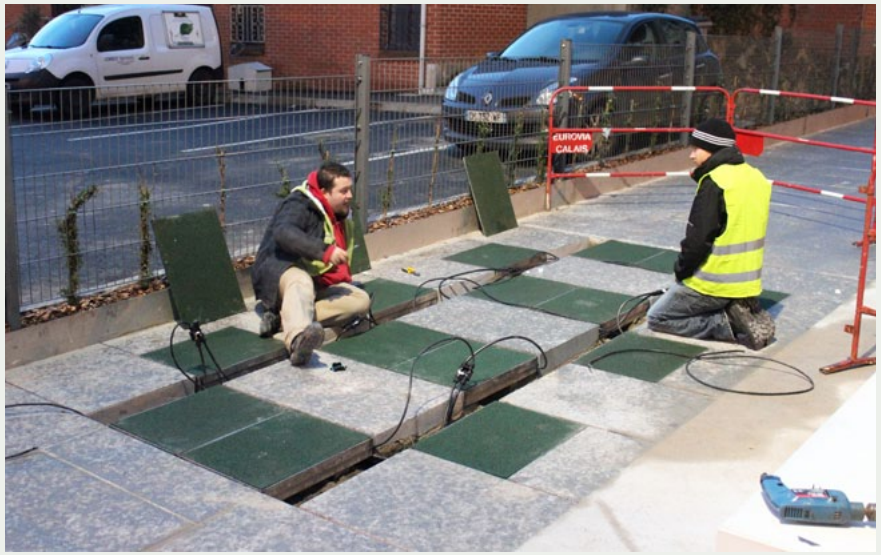
In addition to this, Pavegen can integrate detailed total, cumulative and daily breakdown of footfall and energy figures.



CLICK HERE TO SEE A SHORT DEMO OF PAVEGEN'S WIRELESS CAPABILITIES

Installation at Saint-Omer, France

Below are images of a recent Pavegen installation in Saint-Omer in France. 14 Pavegen tiles were permanenty installed into a public footpath and were connected to nearby architectural lighting.



1.1 Remove material where Pavegen units are to be installed, depending on choice of layout. Ensure hole is deep enough to set Pavegen units into the ground with additional space for screed. Ensure a 2.5/3mm tolerance around the tile for removal and maintenance.

1.2 Insert fast drying self-levelling screed material to form a cavity allowing Pavegen tiles to sit flush with the top surface.

1.3 Once the floor is set, drill the holes in accordance with fig 1.1. Insert the Pavegen tile and the rawl plugs (not provided) to check them for accuracy.

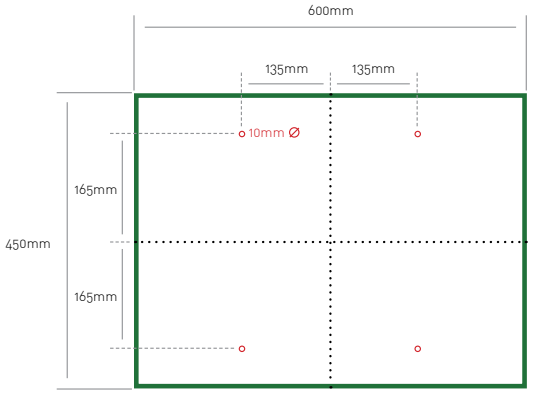


Fig 1.1. Drilling Guide for securing Pavegen units

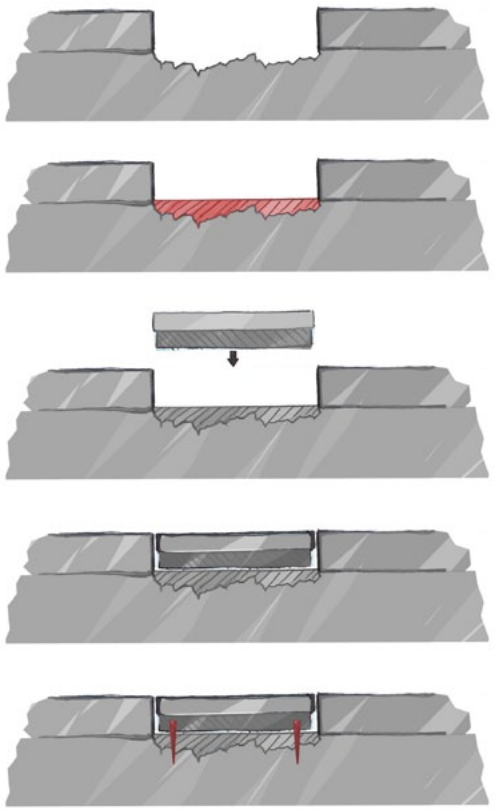
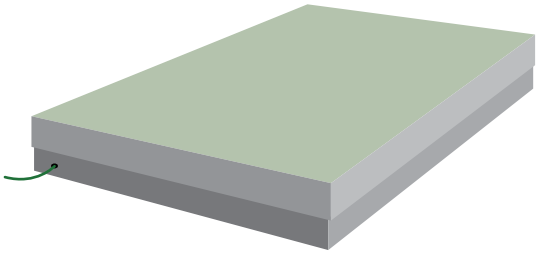


Fig 1.2. Process of clearing area and ensuring Pavegen unit in correctly lined up, ready for installation

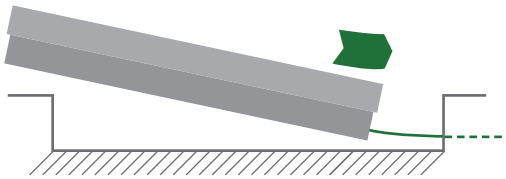
⚠ Two people should lift each side of the Pavegen unit and use correct lifting technique, as shown on the right. The packing is designed to make transporting the units easier and to protect them from dust and dirt until they're ready to install.

2.1 When you're ready to install, slide the unit from its sleeve and connect it to the cables.

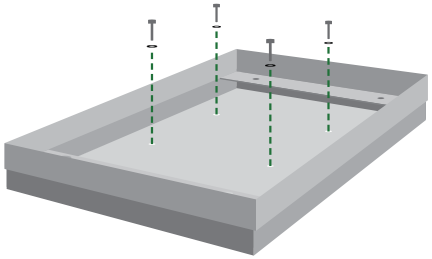


2.2 Remove the topsheet.

2.3 Lower the side closest to the cable first. Check that the unit fits snugly into the aperture. Ensure the cable aren't snagged or trapped by the unit or its surround.

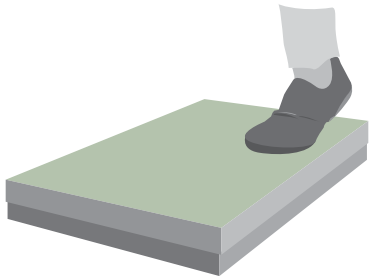


2.4 Secure the unit to the rawl plugs fitted earlier using a rubber washer between the bolt head and the bottom of the unit to make a waterproof seal.

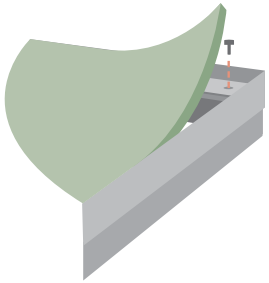


2.5 Replace the top on the Pavegen tile, if applicable ensure the logo is orientated the correct way.

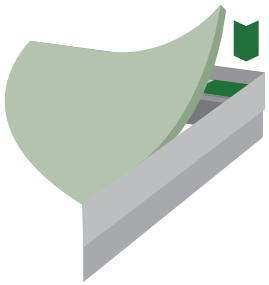
2.6 Step on the unit to check that the top sheet located correctly (use inside of cardboard box to protect against scratching or dirt). Check the external power feed is working using a voltmeter, typically 12V.



2.7 Make a final checks then bolt the top onto the base using the security bolts and tool provided.



2.8 Use the supplied double-sided tape in each corner to permanently secure the rubber top sheet.



2.9 Connect the Pavegen tiles to the application e.g. interactive boards, battery, LED lighting.

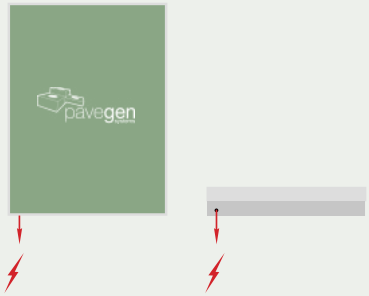
2.10 Test the applications and Pavegen are working properly.

Layout Recommendations

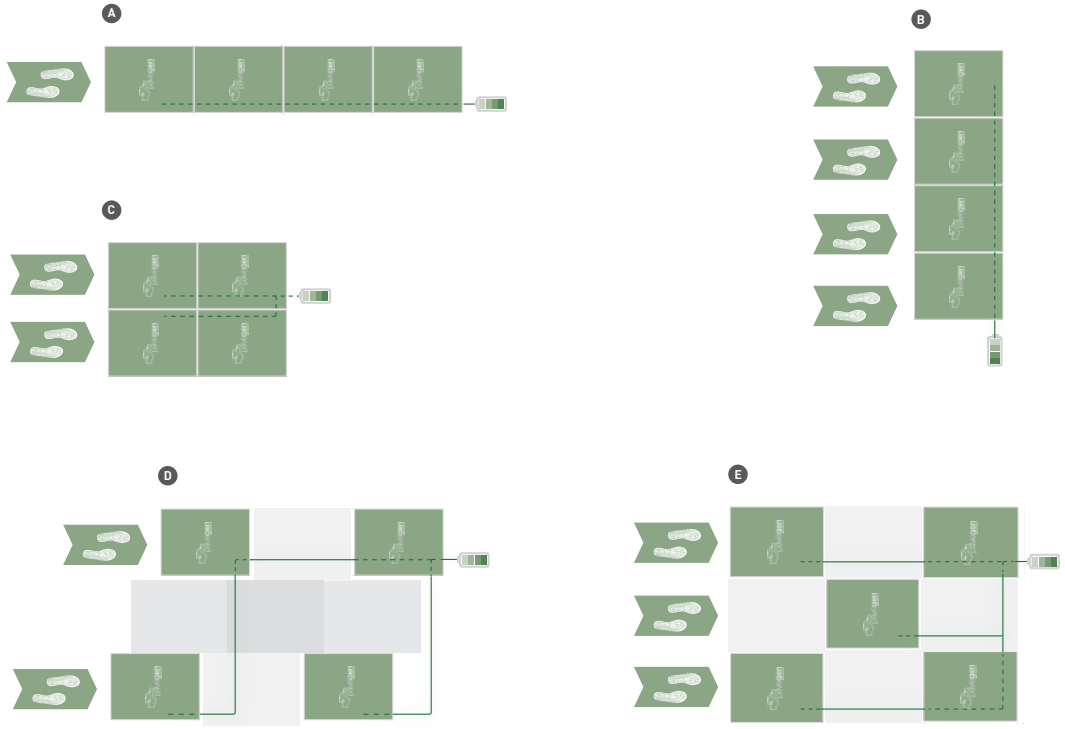
Pavegen Unit Schematic Layouts

Each Pavegen unit generates renewable electricity with every footstep placed upon it. The output of this electricity comes via a single cable, which, when connected to a battery can be stored for later use to power the desired application. Multiple tiles can be connected together to increase the net ouput. The wiring of the Pavegen units is internal, meaning Pavegen tiles to can be placed right next to one another.

Due to this very simple wiring, the layout of multiple tiles is very flexible - for example, allowing for grids or chequerboard patterns to be implemented.



- **A** Linear layout suitable for corridors / aisles
- **B** Units can harvest footfall energy in any direction
- **C** Grid formation suitable for covering large areas
- **D** Intergration into exising paving
- **E** Chequerboard pattern increases coverage of an area



A range of common layouts of Pavegen tiles with wiring configurations

Pavegen Topsheet Options

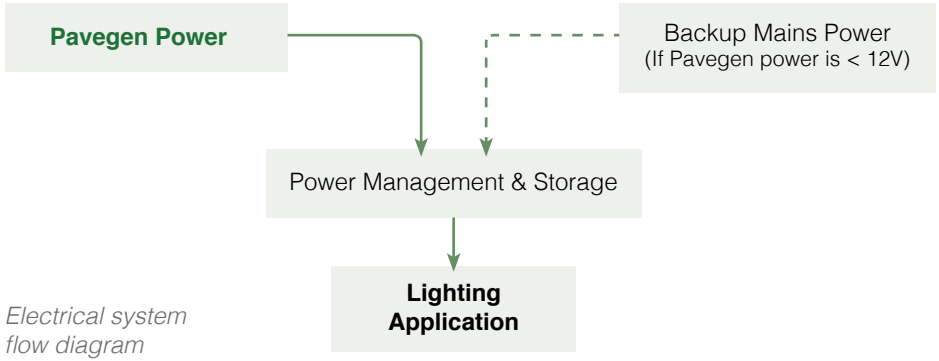
Playtop Safer Surfacing

Playtop with Nike Grind

Made from 100% recycled lorry tire rubber, the Pavegen standard topsheet is available in a selection of colours. This topsheet is durable and ideal for indoor or outdoor use.

+44 (0)20 3397 7279 www.pavegen.com sales@pavegen.co.uk

Pavegen with Smart Power Technology

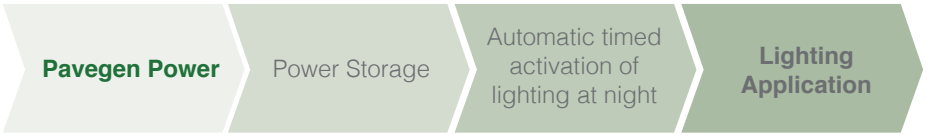


Electrical system flow diagram

The above diagram represents the electrical system that is to be implemented. Electricity generated by the Pavegen units is stored in batteries, which is then used to power the phone charging application. Backup mains electricity will be used to supplement the power if the battery falls below 12V.

CLICK HERE TO SEE A SHORT DEMO OF THE PAVEGEN SMART POWER TECHNOLOGY

Pavegen Battery Charging System



Battery charging system flow diagram

The above diagram represents the battery charging systems implemented by Pavegen. As power is generated during the day by the tiles, it is stored into super capacitors ready for use by the lights at night. Activation of the lights will be automatic, ensuring power is not wasted lighting the area before nightfall.

CLICK HERE TO SEE A SHORT DEMO OF THE PAVEGEN BATTERY CHARGING SYSTEM (password: pavegen)

Energy Calculations and Costing

Calculations

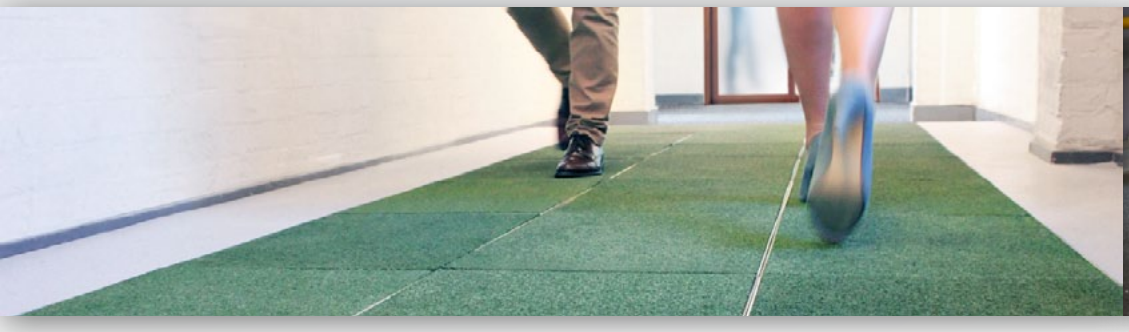
Energy Calculations

Average users per day	30,000
Total hits (Assuming 30 hits per person)	900,000
Energy per step	5 J
Total energy per day (J)	4,500,000 J
Total energy per day (kWh)	1.25 kWh
Total energy per year	456.25 kWh

Costing

Pavegen Tiles - 100	$840 per tile	$84,000
ESTIMATE		
Delivery of Pavegen Tiles to Washington		$4,000
Power Management Smart Power intergration and storage		$4,000
Customized Software Development Outdoor display screens not included		$4,000
Installation Project Management Pavegen engineer on site - Accommodation expenses etc.		$4,000
TOTAL		**$100,000**

Client Responsibility
Hardware installation
Application procurement and installation



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